

BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Study

Region: Pacific

Planning Area(s): Washington-Oregon

Title: Oregon OCS Seafloor Mapping: Selected Lease Blocks Relevant to Renewable Energy

BOEM Information Need(s) to be Addressed: BOEM requires seafloor mapping and site characterization studies in order to evaluate the impact of seafloor and sub-seafloor conditions on the installation, operation, and structural integrity of proposed renewable energy projects, as well as to assess the potential effects of construction and operations on archaeological resources. The purpose of this study is to collect high-resolution bathymetry of a portion of the Outer Continental Shelf (OCS) offshore Oregon. For future offshore energy projects in the Pacific Region, this study will provide information needed to support environmental risk assessments, Environmental Impact Statements, and other decision documents related to the development of the OCS.

Total BOEM Cost: \$465,293

Period of Performance: FY 2014-2016

Conducting Organization: U.S. Geological Survey

Principal Investigator: Dr. Guy Cochran

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Description:

Background: BOEM requires seafloor mapping and site characterization studies in order to evaluate the impact of seafloor and sub-seafloor conditions on the installation, operation, and structural integrity of proposed renewable energy projects, as well as to assess the potential effects of construction and operations on archaeological resources. Foreseeable floating wind projects in the Washington-Oregon planning area are likely to be located in deeper waters where few seafloor data exist. To the degree practicable, this study will integrate newly collected data with other seafloor mapping efforts offshore Oregon, use the Coastal and Marine Ecological Classification Standards to characterize the seabed, and make the final products available to the public via a U.S. Geological Survey (USGS) open-file report.

Objectives: The purpose of this study is to collect high-resolution bathymetry of a portion of the Outer Continental Shelf (OCS) offshore Oregon. The ultimate goal of the study is to provide data to develop comprehensive digital elevation models, habitat maps, and geologic maps, which are needed to address important issues associated with marine spatial planning, ecosystem assessments, geohazards, and offshore infrastructure.

Methods:

Area to be mapped

The area to be mapped will be about 650 km², lying in Federal waters on the shelf and slope offshore of Coos Bay, Oregon, or a comparable area to be decided. Water depths range from 300 to 500 meters and are within the effective depth range of the Reson 7111. The seabed in this area is likely composed of sand and mud on the shelf, with rocky outcrops on the shelf break and upper slope.

Mapping strategy

The multibeam survey will be conducted using a Reson 7111 100 kHz multibeam equipped for deployment on the USGS Research Vessel (R/V) *Parke Snavely*. Swath sonar bathymetry and backscatter-intensity data will generally be collected parallel to bathymetric contours at a speed of approximately 5 nm/hr with approximately 25% overlap of swaths at a 3 to 1 swath width-to-depth ratio. Data will be collected relative to the WGS84 ellipsoid and post processed to the NAD83 horizontal datum and the NAVD88 vertical datum using the Geoid 2003 model.

Multibeam data will be processed at approximately 10-meter resolution (dependent on final survey depths) using CARIS proprietary software. Backscatter-intensity data will then be processed using Geocoder as implemented by Caris or Fledermaus proprietary software. Backscatter processing may include a flat-fielding normalization process designed by the USGS to remove intensity variation due to the sonar response as a function of water depth and range from the sonar if an improvement in quality can be achieved by that approach. Data will be initially processed during the survey for the purpose of quality control and to aid in operational decision making. The preliminary processed data will be used to design a video ground truth survey that will be conducted immediately after the multibeam survey. HD video and still photographs will be collected using a towed video sled that operates approximately 1 meter above the sea floor. The video survey will also be conducted on the USGS vessel, the R/V *Snavely*.

Timeframe

The high-resolution swath sonar survey will be conducted in August 2014. Data will be collected during daylight hours for about 21 days. Final data processing and analysis will be conducted by the USGS.

Current Status: Preparations are ongoing for the 2014 field season.

Final Report Due: June 2016

Publications Completed: None at this time.

Affiliated WWW Sites: None at this time.

Revised Date: September 30, 2013